Space Weather Forecast

Issued on Tuesday, 26 April 2022 at 01:27 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Chance of Moderate-class flares (R1/R2 Radio Blackouts), with a slight chance of Strong flares (R3 Radio Blackouts).

Analysis of Space Weather Activity over past 24 hours
Solar Activity: Solar activity has been Moderate, with two M-class moderate-class flares observed emanating from a large and magnetically complex region in the northwest quadrant during the first 12 hours of the period. Another large and equally magnetically complex region to the south of the first region has been responsible for a number of C-class flares. Both of these regions present a risk of further flares and continue to evolve slowly. There are three more simple regions in the north-centre and northeast disc, along with a simple region in the far southeast. None of these four regions currently present a significant risk of flaring. No Earth-directed CMEs (coronal mass ejections) were observed during the last 24 hours.

Solar Wind / Geomagnetic Activity: The solar wind has been slightly elevated, with a slowly declining speed, as a fast solar wind eases. Both the total magnetic field and the north-south component have been weak. Geomagnetic activity has been Quiet.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) remained at background with no solar radiation storms observed.

Four-Day Space Weather Forecast Summary
Solar Activity: Solar activity is expected to be Low, with a likelihood of some Moderate activity. This is due initially to two significant regions in the northwest quadrant, with further active regions likely to rotate onto the southeast quadrant later in the period. There is an additional slight chance of High activity.

Solar Wind / Geomagnetic Activity: A CME which left the Sun on 21 April was due to glance the Earth on 24 April. This is now presumed to have missed the Earth. A fast solar wind is expected to decline towards background through 26 April. Speeds are then likely to increase either late on 28 April or during 29 April as the Earth connects with a further fast wind, giving estimated speeds of 500km/s. Geomagnetic activity is expected to be mainly Quiet, with Unsettled intervals on 26 April, but then mainly Quiet on 27 April. There is a slight chance of Active to G1/Minor Storm intervals on 28 and 29 April.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is most likely to remain at background levels with no solar radiation storms occurring. However, there is a slight chance of solar radiation storms, as the complex sunspot regions in the northwest of the visible disc are now in a position where any energetic particles that can be released during larger flares may reach Earth.

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	1	1	10	5
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	60	60	60	60
Very Active	R3 to R5 X	No	10	10	10	10

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	10	10	10	10
Very Active	≥ S3 *	No	1	1	1	1
* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)						

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